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Personality and Music Preferences in College Students and Young Children

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ABSTRACT - The relationship between personality traits and music preferences was examined in 155 college students and 32 children, using the Ten Item Personality Inventory (TIPI) and a survey of genre popularities, the Short Test of Music Preferences-Revised (STOMP-R). In college students, Agreeableness was positively associated with preferences in the categories of Upbeat/Conventional music and Energetic/Rhythmic music and negatively associated with preferences for the category of Intense/Rebellious music. In children, Conscientiousness was positively associated with preferences obtained when listening to a Reflective/Complex song, while Neuroticism was negatively associated with preferences obtained when listening to an Upbeat/Conventional song and an Intense/Rebellious song. No significant relationships were found between any of the other Big Five personality factors and any other music genres.

Keywords:
Personality traits; Big Five; Music preferences; Ten Item Personality Inventory; Short Test of Music Preferences; Individual differences; Music psychology

Introduction

According to the Big Five theory (Costa & McCrae, 1985; McCrae & Costa, 1985), personality can be understood, and behavior subsequently predicted, by knowing where an individual falls on the continua of five different traits: extraversion/introversion; agreeableness/antagonism;

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conscientiousness/impulsiveness; emotional stability/neuroticism; and openness to experience/resistance to new Experience. Big Five traits have been associated with social behavior (Lucas & Diener, 2001), cognitive performance (Matthews et al., 1989), coping strategies (Endler & Parker, 1990), political preferences (Jost et al., 2003), and longevity (Friedman et al., 1993), and have provided a useful way to gain understanding of individual differences. The intuitive appeal of traits, coupled with the fact that they are easily assessed, has contributed to the popularity of trait theories in personality research.

Personality traits have been shown to play a role in the musical preferences in listeners of several different age ranges (i.e., Cattell & Saunders, 1954; Delsing et al., 2008; McCowan et al., 1997; Rawlings et al., 1995). For example, Rentfrow and Gosling (2003), using a music preference test called the Short Test of Musical Preferences (STOMP), had college students rate 14 different music genres on a 7-point Likert scale and also complete a variety of other tests, including the Big Five Inventory (BFI). Results showed that preference for reflective/complex music (e.g., jazz) and for intense/rebellious (e.g., rock) genres was positively related to the openness trait, while extraversion, agreeableness, and conscientiousness were positively related to the upbeat/conventional (e.g., country) category. Other research shows that adults scoring high on toughmindedness prefer hard rock music and dislike softer, more popular music (Rawlings et al., 1995), and that extraversion is positively related to preference for music that has high arousal components (i.e., jazz), while openness is related to an expressed enjoyment of non-mainstream musical forms (Dollinger, 1993).

Other research has explored the link between personality traits and musical preferences in younger people. In a study of 1,044 Dutch adolescents ranging in age from 12 to 19 years (Delsing et al., 2008), music preferences were found to be consistently related to personality characteristics. Specifically, adolescents who prefer rock music tend to score low on Conscientiousness and high on Openness, while those who prefer pop/dance music tend to be high scorers on the extraversion and agreeableness scales. We remain relatively uninformed, however, about the musical preferences of children younger than 12 years of age and how those preferences might relate to their personalities. While it has been shown that children prefer fast music over slow music (McPherson, 2006; Montgomery, 1996), and that repetition can enhance their preference for slow music (Muskovitz, 1992), we are unaware of any studies drawing links between these preferences and specific personality traits.

In the present study, we sought to extend the research on the relationship between Big Five traits and music preferences in college students by making use of the STOMP-R, a revised version of the STOMP. The STOMP-R includes 23 different music genres, nine more than in the original version. We were also interested in knowing which of the 23 different genres on the STOMP-R would be rated most positively by college students. Finally, we intended to add to the limited body of data on musical preferences in children by including a sample of young children. With this sample, we sought to identify associations between their self-reported personality and their preferences for musical examples drawn from four different music categories consistent with the STOMP-R categories.

Study 1: College Students

Method

Participants

College undergraduates ($N = 155$, 63.9% female, mean age = 19.4 years, $SD = 1.53$) attending a small mid-western private college were solicited from Introduction to Psychology courses to participate in this study. Students earned research participation credits toward their final course grade as compensation for their involvement.

Materials

Two surveys were administered to college students: the Ten Item Personality Inventory (TIPI) (Gosling et al., 2003), a self-report inventory assessing Big Five personality traits; and the Short Test of Music Preferences Revised (STOMP-R) (Rentfrow & Gosling, 2003) to gauge music preferences.

The TIPI. The TIPI (Gosling et al., 2003) consists of two descriptors for each item, separated by a comma, using the common stem “I see myself as....” Cronbach alpha reliabilities reported by the test authors were .68, .40, .50, .73, and .45 for extraversion, agreeableness, conscientiousness, neuroticism, and openness, respectively. Test-retest (over a 6-week interval) reliability was reported to be .72. Convergent validity, measured by correlations with corresponding scales on the Big Five Inventory (John & Srivastava, 1999), were .87, .70, .75, .81, and .65 for extraversion, agreeableness, conscientiousness, neuroticism, and openness, respectively.

The STOMP-R. The STOMP-R (Rentfrow & Gosling, 2003) contains a list of 23 different types of music (e.g., jazz, punk, alternative) which cluster under four broad categories: intense/rebellious, upbeat/conventional, energetic/rhythmic, and reflective/complex. It is an updated version of the STOMP (Rentfrow & Gosling, 2003), which was constructed through factor analyses to generate the specific categories. The STOMP-R retains those four categories but now includes nine more specific types of music. Respondents were asked to rate each type on a 7-point scale, where 1 = *dislike strongly* and 7 = *like strongly*. To indicate that the respondent was “unfamiliar” with that genre, participants could select a “0.” Test-retest reliability ratings on the four factors reported by the test authors were .89, .82, .80 and .77 for upbeat/conventional, energetic/rhythmic, intense/rebellious, and reflective/complex, respectively.

Procedure

College students completed the TIPI and the STOMP-R as online surveys via computer terminals in a computer lab in the psychology department. Participants also provided their age, gender, race, and class ranking. Participants took the surveys in groups of 10 to 16 participants at a time. The entire procedure took about 20 minutes.

Results and Discussion

College students rated rock music most positively ($M = 6.03$) and bluegrass music least positively ($M = 2.53$). Those musical genres falling within the intense/rebellious category were

rated the most positively ($M = 4.93$). Lowest mean ratings were seen on music falling within the reflective/complex category ($M = 3.63$). In fact, among the five least preferred music categories, 80% (4 out of 5) of them belonged to the category of reflective/complex (bluegrass, folk, opera, and new age). Rank orders for each of the 23 different musical genres are listed in Table 1, and mean ratings by category are listed in Table 2.

Table 1: Rank order of music preferences of STOMP-R categories

<i>Genre</i>	<i>M</i>
Rock	6.03
Pop	5.63
Rap/hip Hop	5.46
Soundtrack	5.44
Oldies	5.34
Alternative	5.20
Soul/R&B	4.89
Classical	4.77
Punk	4.72
Dance	4.71
Country	4.65
Jazz	4.61
Reggae	4.27
Blues	4.13
Heavy metal	3.69
International	3.64
Funk	3.63
Religious	3.60
Gospel	3.41
New age	3.25
Opera	3.10
Folk	3.01
Blue grass	2.53

Note: mean rating based on a 7-point scale.

Thirty-one percent of respondents selected “unfamiliar” for new age, while 21% chose that option for bluegrass. For each of the other musical genres listed on the STOMP-R, fewer than 10% of respondents indicated they were unfamiliar with that type of music.

College students at or above the 75th percentile were compared with those at or below the 25th percentile on each Big Five trait. Cutoff scores for these percentiles, along with means and standard deviations, are presented in Table 3. One-way ANOVAs were conducted to determine whether ratings of the 23 music genres differed between those participants showing the most and

those showing the least of each trait. Significant differences were found between the low-agreeableness group ($n = 50$) and the high-agreeableness group ($n = 55$) on music preference, $F(1, 103) = 8.31, p = .005$ (see Figure 1). The mean preference for intense/rebellious music among participants in the low-agreeableness group of 5.29 ($SD = 1.14$) was significantly higher than the mean preference among high-agreeableness participants of 4.60 ($SD = 1.30$), [$t(101) = 2.88, p < .005, d = .56$]. The mean preference for upbeat/conventional music among high-agreeableness participants of 4.96 ($SD = .88$) was significantly higher than the mean preference among low-agreeableness participants of 4.15 ($SD = .92$), [$t(101) = 4.08, p < .001, d = .78$]. The mean preference for energetic/rhythmic music among high-agreeableness participants of 4.76 ($SD = 1.02$) was significantly higher than the mean preference among low-agreeableness participants of 4.28 ($SD = 1.19$), [$t(101) = 2.20, p = .03, d = .43$]. See Table 4 for the means. No differences between extreme scorers on any other personality factors were found in preferences for any of the other musical genres.

Table 2: Mean ratings of music genres by category

Category	<i>M</i>
Intense/Rebellious	4.93
Upbeat/Conventional	4.68
Energetic/Rhythmic	4.59
Reflective/Complex	3.63

Note: mean rating based on a 7-point scale.

Table 3: Means, standard deviations, and cutoff scores for the 25th and 75th percentile on each Big Five trait for the college student sample

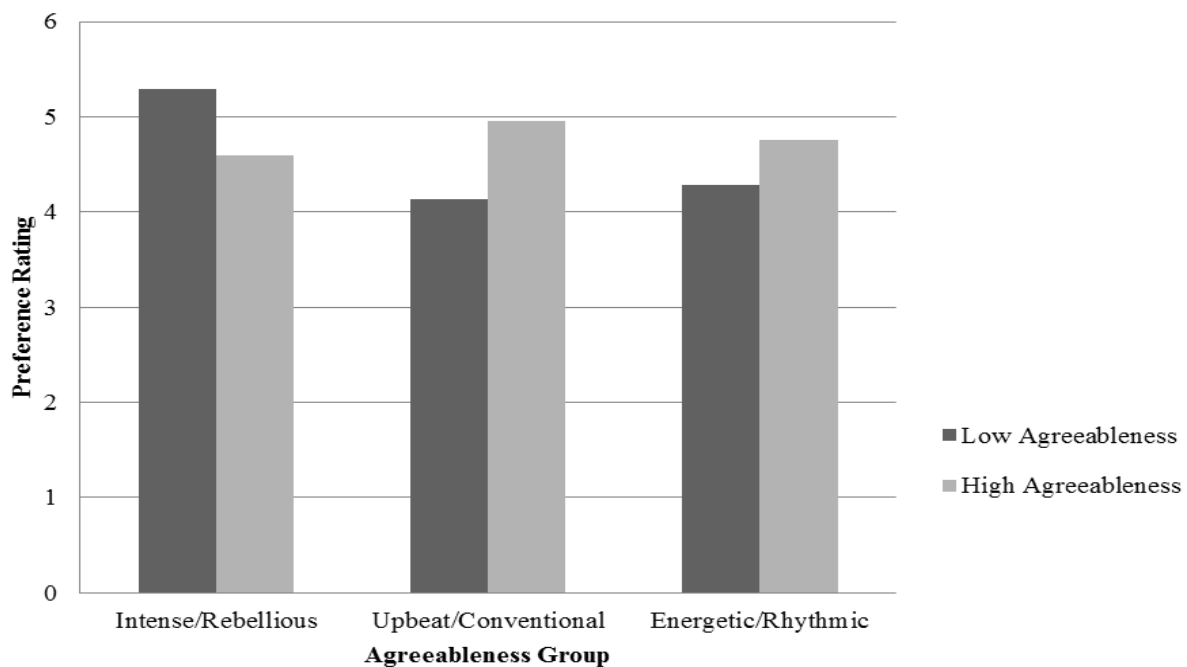
	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
<i>M</i> (<i>SD</i>)	4.51 (1.41)	4.82 (1.09)	5.78 (1.09)	4.76 (1.30)	4.98 (1.03)
25 th percentile cutoff score	3.50	4.00	5.00	4.00	4.25
75 th percentile cutoff score	5.50	5.50	6.50	6.00	5.75

Table 4: Means and standard deviations for music category ratings for low- and high-agreeableness groups

Music category	Low-Agreeableness Group <i>M (SD)</i>	High-Agreeableness Group <i>M (SD)</i>
Intense/Rebellious	5.29 (1.14)**	4.60 (1.30)**
Reflective/Complex	3.74 (1.06)	3.55 (0.99)
Upbeat/Conventional	4.15 (0.92)***	4.96 (0.88)***
Energetic/Rhythmic	4.28 (1.19)*	4.76 (1.02)*

Note: * $p < .05$ ** $p < .01$ *** $p < .001$

Figure 1: Mean ratings by college students of the music categories by low-and high-agreeableness groups



Study 2: Young Children

Method

Participants

Children ($N = 32$, 59.4% female, mean age = 6.16 years, $SD = 2.05$) from three different area daycare centers served as participants. Children received an appropriate age toy for participating.

Materials

Sixty second music excerpts of different songs from the four main categories of the STOMP-R were created using iTunes and the Audacity program, a free on-line audio editor (see Table 5 for a list of songs and artists). Tunes were selected from the authors' personal music libraries. Classifications were verified using online sources and jazz periodicals. For example, Wikipedia classifies Muse as an "alternative rock band," while Kevin Mahogany is described as a "jazz singer" by DownBeat magazine. Tunes were then edited to the desired length (about 60 s each) by first downloading them into the Audacity program. A chorus or repetitive section of the song was selected as the starting point and was then "clipped" at 60 s. Excerpts faded in at the beginning and out at the end.

Table 5: Music excerpts heard by children

Genre	Song and Artist
Jazz (Reflective/Complex)	<i>All Blues</i> by Kevin Mahogany
Pop (Upbeat/Conventional)	<i>I'm Yours</i> by Jason Mraz
Alternative (Intense/Rebellious)	<i>Supermassive Black Hole</i> by Muse
Soul/R&B (Energetic/Rhythmic)	<i>Refuge</i> by John Legend

TIPI-Child Version. A child-appropriate version of the TIPI¹ was created for use with our child participants to provide a very brief personality measure to deal with the limited attention spans in children. Synonyms for the trait words listed on the original TIPI were generated, and words were selected that we believed young children would understand. These words were then pilot tested with a convenience sample of college students.

For the Extraversion scale ($\alpha = .35$), children indicated how well the words "happy" and "shy" described themselves by pointing to a picture of a cartoon "smiley" face (to indicate "*strongly agree*"), a face that looked like it was thinking (to indicate "*not sure*"), or a frowning face (to indicate "*strongly disagree*"). The agreeableness scale ($\alpha = .11$) comprised the words "stubborn" and "friendly." The conscientiousness scale ($\alpha = .70$) comprised the words "careful" and "messy." The neuroticism scale ($\alpha = .19$) comprised the words "scared" and "relaxed." Finally, the openness scale ($\alpha = .28$) comprised the words "curious" and "not very smart." These reliability statistics are somewhat lower than what other investigators have found (e.g., Eder, 1990) in assessments of children's self-concepts.

Procedure

Permission was obtained from daycare center directors and from parents and/or guardians for their children to participate in our study. Children were tested individually in a room during the day at their daycare center. They were asked to listen to and rate four different songs, each about 60 s long, using pictures of cartoon faces to indicate whether they liked ("smiley" face), disliked ("frown" face), or neither liked nor disliked ("thinking" face) the song. The four songs were selected to coincide with the four main music genres on the STOMP-R (see Table 5). The order of songs was counterbalanced, and children were randomly assigned to one of the four

counterbalanced orders. Children first listened to two sample songs (“Twinkle Twinkle Little Star” and “Baby Bumblebee”) to practice the procedure. In order to maintain motivation, some children wore special “listening ears” (headbands with bunny ears attached) while they completed the task. After listening to and rating the four songs, children were then given the personality test. Examiners asked children about their traits (“Are you messy?”; “Are you shy?”), and children pointed to one of the three faces to indicate whether the trait described them. When the study was over, children selected among some age-appropriate toys to take as their reward for participating. The entire procedure took about 15 min.

Results and Discussion

A median split was used to divide the children into two groups for each trait: low and high. A series of ANOVAs were run with level of the trait (low, high) as the independent variable and ratings of the music excerpts as the dependent variables. Mean ratings of the four excerpts are presented in Table 6.

Table 6: Children’s mean ratings of music excerpts

Category	<i>M</i>
Upbeat/Conventional (<i>I’m Yours</i>)	2.75
Intense/Rebellious (<i>Supermassive Black Hole</i>)	2.50
Energetic/Rhythmic (<i>Refuge</i>)	2.28
Reflective/Complex (<i>All Blues</i>)	1.91

Note: Ratings based on a 3-point scale

A significant difference was found between children in the high-conscientiousness group and children in the low-conscientiousness group, $F(1,30) = 4.20, p = .049$. The mean preference ($n = 18, M = 2.17, SD = 0.86$) for the jazz song among high-conscientiousness participants was significantly higher than the mean preference ($n = 14, M = 1.57, SD = 0.76$) among low-conscientiousness participants [$t(30) = 2.05, p = .049, d = .77$]. See Figure 2.

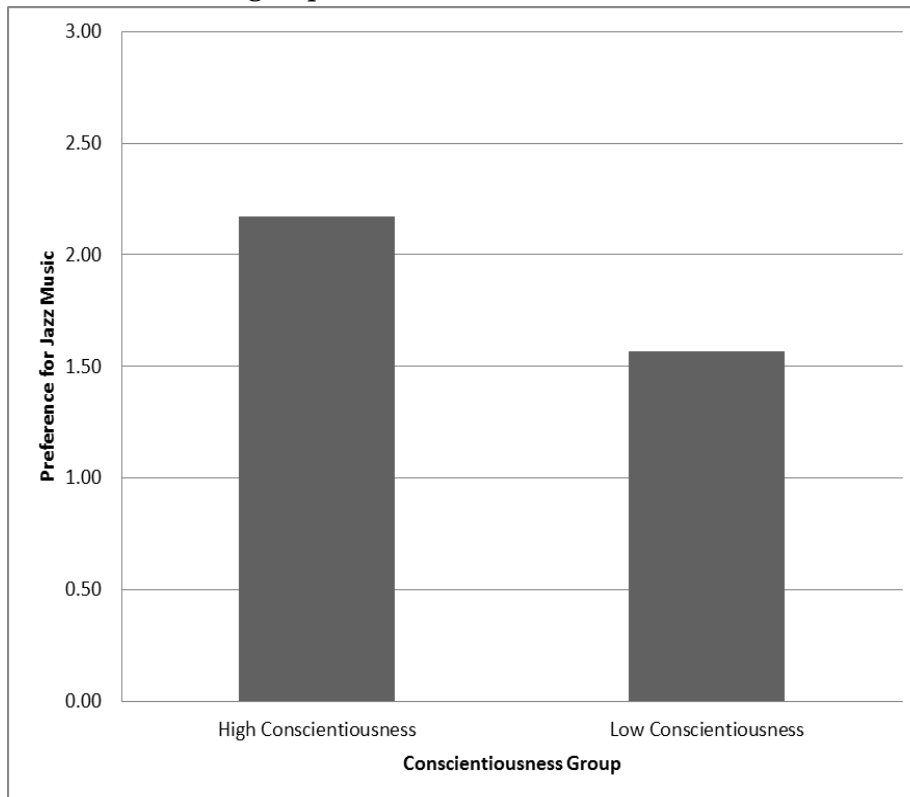
Two significant differences among musical preference were found to be related to the neuroticism dimension, $F(1,30) = 5.67, p = .02$. Children in the low-neuroticism group ($n = 17$) rated alternative music ($M = 2.76, SD = 0.56$) higher than children in the high-neuroticism group rated that same selection ($n = 15, M = 2.20, SD = 0.77$), $t(30) = 2.38, p = .02, d = .83$. The low-neuroticism group also rated pop more positively ($M = 2.94, SD = 0.24$) than the high-neuroticism group rated the same selection ($M = 2.53, SD = 0.74$), $t(30) = 2.14, p = .04, d = .74$. See Figures 3 and 4. Music preferences were not linked to any other personality traits.

General Discussion

These data suggest that personality traits are related to music preferences. College students who scored high on agreeableness rated energetic/rhythmic music and upbeat/conventional music more positively than did low scorers on this trait, while those scoring low on agreeableness rated intense/rebellious music more positively, when compared with high agreeableness scorers.

Individuals who score high on agreeableness tend to be good-natured, nice, warm, cooperative, kind, friendly, and courteous. They are easily pleased and accepting. Pop music selections (upbeat/conventional) and soul/R&B (energetic/rhythmic) music typically have rhythms that can be considered “catchy” and pleasing, which may resonate well with those high on this trait. Those who score low on agreeableness are often characterized as antagonistic, harsh, crude, manipulative, and hurtful. Intense/rebellious music may provide an avenue for the expression of such personality dimensions.

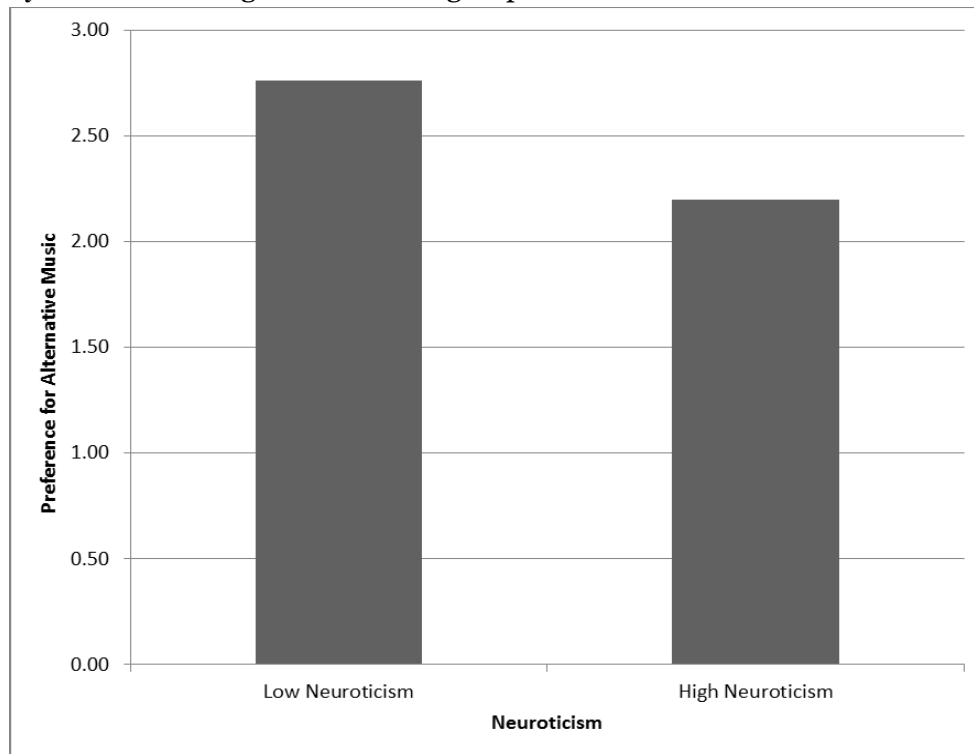
Figure 2: Mean ratings by children of the jazz excerpt (*All Blues*) by the low- and high-conscientiousness group



Some of these findings are consistent with earlier research. For example, our finding that agreeableness is associated with both the energetic/rhythmic and upbeat/conventional categories is consistent with findings by Rentfrow and Gosling (2003). They demonstrated that Agreeableness was positively correlated with these two music dimensions and suggested that people who enjoy listening to such music are cheerful, forgiving, and enjoy helping others. Additionally, our study produced results consistent with Rentfrow and Gosling (2003) in terms of the absence of a relationship between neuroticism and music preferences in adults. In contrast to their work, however, we found that low scorers on agreeableness tended to rate intense/rebellious music more positively than did high scorers on agreeableness. Rentfrow and

Gosling (2003) specifically state that “despite previous findings that this dimension contains music that emphasizes negative emotions, individuals who prefer music in this dimension do not appear to display signs of neuroticism or disagreeableness” (p. 1249). Our results would suggest otherwise.

Figure 3: Mean ratings by children of the alternative music excerpt (*Supermassive Black Hole*) by the low- and high-neuroticism groups



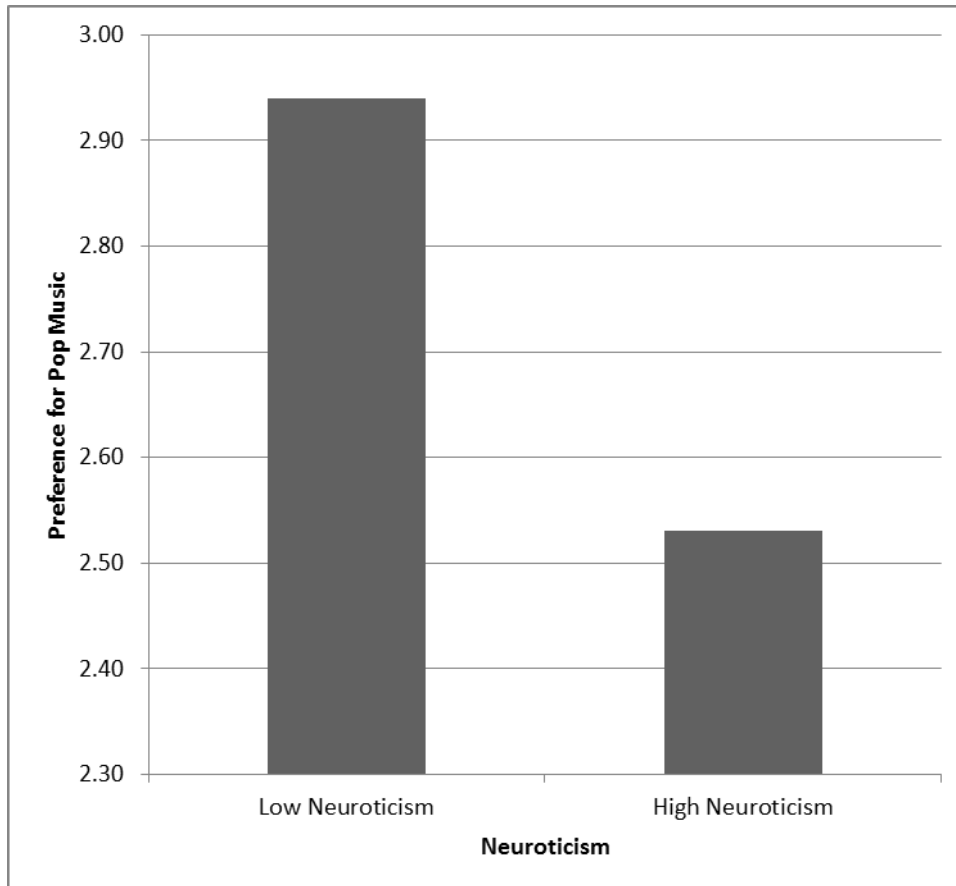
In our pilot sample of children, we found some evidence that conscientiousness and neuroticism were predictive of music preferences. Children scoring high on conscientiousness rated the reflective/complex music excerpt more positively than those scoring low on this trait. This link may be reasonable if conscientiousness indicates a personality more likely to “play by the rules.” If so, this may, in turn, suggest greater patience, which, in turn, may predispose a person to be reflective. Children scoring low on neuroticism rated both the alternative and pop music excerpts more positively than those scoring high on neuroticism.

The data also suggest that both children and college students like intense/rebellious (i.e., rock, funk) and upbeat/conventional (i.e., pop, country) music better than energetic/rhythmic (i.e., reggae, soul/R&B) and reflective/complex (i.e., jazz, new age) music. College students rank rock music most positively and bluegrass music least positively, out of 23 different music genres.

We remain puzzled as to why conscientiousness and neuroticism would predict musical preferences in children but not in college students and why agreeableness would predict musical preferences in college students but not in children. Given the cross-sectional design of our study,

we expected that all three would have been predictive for both groups. We were also surprised that none of the other Big Five personality traits were predictive of music preferences in either age group, since others have shown that extraversion predicts preference for dance music (Cattell & Saunders, 1954) and tough-mindedness is related to preference for dissonance (McCowan et al., 1997; Rawlings et al., 1995). Additional research is needed to clarify these relationships.

Figure 4: Mean ratings by children of the pop music except (*I'm Yours*) by the low- and high-neuroticism groups



The results obtained with our child sample must be viewed with caution. Our adapted TIPI produced some comprehension problems for our children; in particular, the words “stubborn” and “curious” were not always understood by our participants and required further explanation by the examiner. Despite the challenges, efforts to contribute to research on children’s personality development, especially via self-report techniques, are desirable and promising, and we encourage work in that direction. Gathering more data on children and adolescents would help to establish any developmental trajectories that might characterize the relationship between traits and musical preferences. We recognize the need for longitudinal research on this topic to enhance our understanding of any age-related changes. Finally, further study of the STOMP-R’s

classifications may be warranted. Not all of the musical genres on this test were familiar to a sizeable portion of our college student sample. The impact that this unfamiliarity may have on the usefulness of this tool requires a closer look. We recommend considering a new, refined version of the classification system (Rentfrow, Goldberg, & Levitin, 2011) that appeared two years after we completed data collection.

Footnotes:

1. Copies of the child version of the TIPI are available from the first author.
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